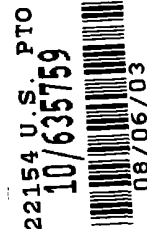




**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

In re Application of: Bruce B. Randolph, Glen W. Dodwell and Edward L. Sughrue II

For: SUPPORTED IONIC LIQUID AND THE USE THEREOF IN THE  
DISPROPORTIONATION OF ISOPENTANE



**LETTER**

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Attached hereto for filing in the United States Patent and Trademark Office is the patent application identified above. This application includes an executed assignment and zero (0) sheet(s) of drawings.

The filing fee has been computed as follows:

Basic Fee	\$750.00
Additional Fees:	
Total Number of claims (whether independent or dependent over 20, times \$18.00	162.00
Number of independent claims over 3, times \$84.00	0.00
Multiple Dependent Claims (\$280)	0.00
<b>TOTAL Filing Fee</b>	<b>\$912.00</b>

Please charge Deposit Account 16-1575 in the amount of the total filing fee stated above.

The Commissioner is hereby authorized to charge any additional fees which may be required under 37 CFR 1.16 or 37 CFR 1.17, or credit any overpayment, to Deposit Account 16-1575, but is not authorized to charge any fee provided for under 37 CFR 1.18.

If the Examiner wishes to contact representatives of record concerning the accompanying application prior to the first Official Action, such contact should be made with the undersigned.

The following references are called to the Examiner's attention.

"A New Family of Mesoporous Molecular Sieves Prepared with Liquid Crystal Templates"; Beck, J.S. et al.; J. Am. Chem. Soc.; **1992**, 114, 10834-10843, discloses that MCM-41 exhibits a hexagonal arrangement of uniform mesopores whose dimensions may be engineered in the range of ~15 Å to greater than 100 Å.

"Room Temperature Ionic Liquids. Solvents for Synthesis and Catalysis"; Welton, Thomas; Chem. Rev. **1999**, 99, 2071-2083, discloses the preparation of ionic liquids and the use of such as solvents and catalysts.

U.S. Patent Application Publication No. : U.S. 2002/0055439 A1, Palmer et al., Pub. Date: May 9, 2002, discloses a method for treating a wellbore (or well casing) and the contiguous wellbore area to remove scale (mineral deposits comprised of, e.g., BaSO<sub>4</sub>, CaCO<sub>3</sub>, etc.) in the context of hydrocarbon recovery and other applications, said method including contacting the scale with a fluid comprised of an ionic liquid or liquids.

European Patent Application Publication EP 1120159 A1, Holderich, Date of Publication: 01.08.2001, discloses a process to make a supported ionic liquid, the supported ionic liquid so obtained, and the use of this supported ionic liquid as a catalyst in chemical processes.

U.S. 5,145,816, Beck et al., September 8, 1992, discloses a method for modifying a novel composition of synthetic ultra-large pore crystalline material by incorporating functional groups into the crystalline material.

U.S. 6,288,281, Nemeth et al., September 11, 2001, discloses a process for the carbonylation of saturated hydrocarbons to give an oxygenated saturated hydrocarbon, said process involving using an acidic ionic liquid catalyst to catalyze the carbon monoxide addition to the saturated hydrocarbon at reaction conditions to form an oxygenate.

U.S. 6,265,630, Randolph et al., July 24, 2001, discloses a process for the disproportion of pentane to alkanes containing fewer carbon atoms per molecule and alkanes containing more atoms per molecule in the presence of a catalyst composition containing hydrogen fluoride (HF), titanium tetrafluoride (TiF<sub>4</sub>) and sulfolane.

U.S. 5,900,522, Hommeltoft, May 4, 1999, discloses a process for the preparation of an isobutene/isohexane containing product comprising passing an isopentane feed to a disproportion stage and disproportionating the isopentane feed in the presence of olefinic and/or higher branched paraffinic hydrocarbons by contact with an acid catalyst.

U.S. 5,824,832, Sherif et al., October 20, 1998, discloses that a low temperature molten ionic liquid composition comprising a mixture of a metal halide in an alkyl-containing amine hydrohalide salt can be used in linear alkylbenzene formation.

U.S. 5,731,101, Sherif et al., March 24, 1998, discloses a low temperature molten ionic liquid composition comprising a mixture of a metal halide in an alkyl-containing amine hydrohalide salt which is useful as a catalyst and a solvent in alkylation, arylation and polymerization reactions or as an electrolyte for batteries.

U.S. 5,693,585, Benazzi et al., December 2, 1997, discloses a catalyst containing a porous organic or mineral support and at least one active phase having at least one aluminum halide, at least one compound selected from quaternary ammonium halides and amine hydrohalides, and at least one cuprous compound, the support having been impregnated with the active phase, the catalyst essentially constituted by particles with an average diameter in the range 0.1  $\mu\text{m}$  to 150  $\mu\text{m}$ , and the support, before impregnation with the active phase, has a total pore volume in the range of 0.1  $\text{cm}^3/\text{g}$  and 6  $\text{cm}^3/\text{g}$ .

U.S. 5,489,727, Randolph et al., February 6, 1996, discloses that the disproportionation of isopentane (s) in the presence of hydrogen fluoride as the catalyst is improved by adding at least one C<sub>6</sub> - C<sub>18</sub> (preferably C<sub>6</sub> - C<sub>8</sub>) isoalkane to the isopentane feed.

U.S. 3,679,771, Hutson, Jr. et al., July 25, 1972, discloses that isoparaffins are converted in a reaction zone to other hydrocarbons including isoparaffins containing fewer carbon atoms per molecule and isoparaffins containing more carbon atoms per molecule by contacting an isoparaffin feedstock with hydrofluoric acid in the presence of an amount of an olefin which is sufficient to increase the conversion of said feedstock..

Respectfully submitted,  
RICHMOND, HITCHCOCK,  
FISH & DOLLAR

By Jeffrey R. Anderson  
Jeffrey R. Anderson  
Registration No. 42,263

RICHMOND, HITCHCOCK  
FISH & DOLLAR  
P.O. Box 2443  
Bartlesville, OK 74005  
1-918-661-9607

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Date of Deposit: August 6, 2003

I hereby certify that this fee letter is being deposited with the United States Postal Service "Express Mail Post Office to Addressee" service under 37 CFR 1.10 on the date indicated and is addressed to the Commissioner for Patents, Alexandria, VA 22313-1450, on

August 6, 2003

(Date)

Jeffrey R. Anderson  
Jeffrey R. Anderson

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**CERTIFICATE OF MAILING BY "EXPRESS MAIL"**

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PO Box 1450  
Alexandria, VA 22313-1450

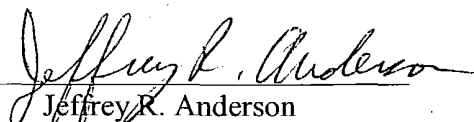
Sir:

I hereby certify that this application is being deposited with the United States Postal Service "Express Mail Post Office To Addressee" service under 37 C.F.R. 1.10 on the date indicated above and is addressed to the Assistant Commissioner for Patents, Washington, D.C. 20231.

Respectfully submitted,

RICHMOND, HITCHCOCK,  
FISH & DOLLAR

By

  
Jeffrey R. Anderson  
Registration No. 42,263

RICHMOND, HITCHCOCK,  
FISH & DOLLAR  
P.O. Box 2443  
Bartlesville, Oklahoma 74005  
1-918-661-9607